

**Conclusions:** Ultradian biorhythms are not just a trend, and due to high-technologies development, they may be used during diagnosis and during the treatment and planification of therapeutic maneuvers as well. It rests to elucidate, argumentate optimal, corect, economical and affordable methods of personalized determination of these rhythms.

**Key Words:** Ultradian Biorhythms, Synchronization, Cell Population.

### 301. GENETIC HETEROGENEITY IN DIABETES MELLITUS

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**Introduction:** Diabetes mellitus (DM) represents a group of pathological conditions that share the phenotype of hyperglycemia as the result of insulin deficiency or the disorders of insulin action. 90% of people with diabetes have type 2 diabetes (T2D), while type 1 diabetes (T1D) affects 10% of the patients. T1D has a strong autoimmune component, proved by the correlation with specific haplotypes of the HLA system. T2D develops mainly because of the  $\beta$ -cell dysfunction and insulin resistance. There are rare forms of DM caused by genetic defects of  $\beta$ -cell function, genetic defects of insulin action, diseases of the exocrine pancreas, endocrinopathies, diabetes induced by chemicals or infections.

The epidemiological aspects of DM impress with its worldwide expansion and high prevalence in people. Severe vascular and neurologic complications of diabetes reduce the quality and duration of life, bringing an economic impact to the countries' budgets. We have performed a study which was aimed for the determination of the genetic background and the evolutional features of the disease in patients with DM.

**Materials and methods:** The study was performed in the Department of Molecular Biology and Human Genetics, most of the patients being from the Department of Endocrinology, the Republican Clinical Hospital. We studied 34 clinical cases of DM: 19 male and 15 female patients, between 18 and 80 years old; 10 with the diagnosis of T1D, and 24 with T2D. The questionnaire included the following aspects: the debut of the disease, the features of the objective and paraclinical examination, the evolution of DM including acute and chronic complications, family history and life style.

**Discussion results:** The study has shown the following results: genetic susceptibility can be observed more frequently in patients with T2D; T2D is Associated with obesity, arterial hypertension and dyslipidemia while patients with T1D have normal body mass index; T1D may be Associated with other autoimmune diseases, such as autoimmune thyroiditis or rheumatic cardiopathy; many patients with T2D treated with oral antidiabetic drugs had to Associate insulin to their therapy, so,  $\beta$ -cell dysfunction plays an important role in T2D pathogenesis.

**Conclusion:** The pathogenesis of DM shows a strong genetic component Associated with life style features. So, it would be a great opportunity of preventing the disease and its complications by changing the habits in people with family history and genetic predisposition for DM. The principles of genomic medicine should be brought closed to the clinical medicine. The implementation of genetic

testing and personalized approach to the patients would reduce the cost of the treatment by reducing the incidence of DM.

**Key Words:** diabetes, genomics, candidate genes, metabolic syndrome

### 302. THE IMMUNE PROCESS IN THE PATHOGENESIS OF TUMORS

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**Introduction:** The immune process in the pathogenesis of the tumors represents an actual subject for the prevention and the treatment of the cancer, which frequency is decreasing while studying the newest theories of the etiopathology of cancer, a disease that is the common cause of death.

**The objective** of this study is to review the newest methods, that explain the role of the immune processes in the pathology and the treatment of tumors.

**Material and methods:** Informational support for the development of this publication has served a full amount of current national and international journals, which are concerned with tumors, found through the „PubMed” „Google” si „CrossRefMedlineWeb of Science”. After entering the filters: the immune process in the pathogenesis of tumors were selected 20 sources.

**Results:**After studying the interaction between the immune system and the tumors, different immunotherapies were identified: the new therapeutic monoclonal antibodies, that were approved by the Food and Drug Administration, as a standard treatment in some forms of cancer, Associated with trastuzumab for mamar cancer and rituximab for the B cells lymphoma, and the vaccines, which are starting to be used in clinical practice, either alone or in various combinations.

**Conclusions:** Much has been learned about the potential of the immune system to control cancer and the various ways that immunotherapy can boost the potential of the immune system for the benefit of the patient. This knowledge has stimulated the invention of many new therapeutic antibodies, cell-based treatments, and vaccines, which are starting to be used in clinical practice, either alone or in various combinations. These new therapies are expected to result in improved cancer treatment and, eventually, the prevention of cancer.

**Key words:** The hallmarks of cancer, the immunology of cancer, imunogenicity, immunosuppression, immunotherapies.

### 303. THE INFLUENCE OF EXPIRATION AND INSPIRATION DURATION ON RESPIRATORY HEART ARRHYTHMIA

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